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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,156	01/14/2002	Gene Harlow Johnson	RCA 89645	8174

7590 05/08/2006

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EXAMINER

TRAN, TRANG U

ART UNIT	PAPER NUMBER
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2622

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/031,156	Applicant(s) JOHNSON ET AL.	
	Examiner Trang U. Tran	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 30, 2006 has been entered.

Response to Arguments

2. Applicant's arguments filed January 30, 2006 have been fully considered but they are not persuasive.

In re pages 7-9, applicant argues, with respect to claims 1-3, that none of the applied references cited by the examiner even remotely suggest the claimed features "marking the selected channel as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal", "marking the selected channel as an analog signal if the intermediate frequency of the selected channel is similar to a nominal frequency for an analog signal", and "storing information indicative of whether the selected channel is marked as a digital or analog channel" as recited in claim 1 because the examiner has failed to establish a prima facie case of obviousness since none of the cited suggests the above claimed limitations of claim 1.

In response, the examiner respectfully disagrees. Citta (PN 5,283,653) discloses in col. 1, lines 23-40 that "In the recently announced Digital Spectrum compatible High

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Definition Television System (DSC/HDTV) jointly developed by zenith ... **the digital nature of the HDTV signal, it is of inherently lower power**...when tuned to a “television channel”, in col. 2, lines 32-35 that “FIG. 1, showing the spectrum of a **6 MHz HDTV television channel, including the carrier frequencies of an HDTV signal and an NTSC co-channel signal**, was discussed above”, and from col. 3, line 49 to col. 4, line 10 that “In the autoprogramming mode illustrated by the flow chart of FIG. 4, the television channels are sequenced (by number) automatically with the HDTV signal being **initially tested for with a synthesized HDTV carrier**. If found, **a memory bit HD is set in RAM 28 (FIGS. 2 and 5) to indicate that television channel has an HDTV signal**. An FC (favorite channel) bit in the RAM table of FIG. 5 is also set to 1 to denote that a signal has been found on that television channel. **If no HDTV signal is found, the NTSC co-channel carrier frequency is synthesized and the test is repeated. If the television channel is found to have an NTSC signal, the RAM memory is appropriately marked with an HD bit of 0**... It will be appreciated that the autoprogramming feature is ancillary to the basic aspect of the invention signals”. From the above passages, it is clear that the HDTV of Citta is digital signal and has HDTV carrier frequency (the claimed nominal frequency for a digital signal), that the NTSC signal of Citta is analog signal and has NTSC carrier frequency (the claimed nominal frequency, and that the autoprogrammming of Citta “marking the selected channel as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal (detecting the HDTV)”, “marking the selected channel as an analog signal if the intermediate frequency of the selected channel is similar to a

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nominal frequency for an analog signal (detecting the NTSC)", and "storing information indicative of whether the selected channel is marked as a digital or analog channel (marking HD bit in RAM 28)" as recited in claim 1. Thus, the proposed combination of the cited references discloses all the claimed limitations.

In re pages 9-10, applicants argue, with respect to claim 4, that Han, similarly to Lee and Citta, neither discloses nor suggests "marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal" and "marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal" as claimed in the amended claim 1 of the present invention.

In response, as discussed above with respect to claim 1, Citta does disclosed the claimed alleged limitations "marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal" and "marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal".

In re pages 10-11, applicants argue, with respect to claim 5, that Citta et al, similarly to Lee and Citta, neither discloses nor suggests "marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal" and "marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal" as claimed in the amended claim 1 of the present invention.

In response, as discussed above with respect to claim 1, Citta does disclosed the claimed alleged limitations “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”.

In re pages 11-12, applicants argue, with respect to claims 6-7, that Shintani et al, similarly to Lee and Citta, neither discloses nor suggests “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in the amended claim 1 of the present invention.

In response, as discussed above with respect to claim 1, Citta does disclosed the claimed alleged limitations “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”.

In re pages 12-13, applicants argue, with respect to claims 8-9 and 11, that Han, similarly to Lee and Citta, neither discloses nor suggests “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal”, “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”, and “storing information about the type of channel for each of the plurality of

channels into said memory unit” as claimed in the amended claim 8 of the present invention.

In response, as discussed above with respect to claim 1, Citta does disclosed the claimed alleged limitations “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal”, “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”, and “storing information about the type of channel for each of the plurality of channels into said memory unit”.

In re page 14, applicants argue, with respect to claim 10, that Sugiyama, similarly to Lee and Citta, neither discloses nor suggests “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal”, “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”, and “storing information about the type of channel for each of the plurality of channels into said memory unit” as recited in claim 8.

In response, as discussed above with respect to claim 1, Citta does disclosed the claimed alleged limitations “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal”, “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”, and “storing information about the type of channel for each of the plurality of channels into said memory unit”.

In re pages 15-16, applicants argue, with respect to claim 12, that Han, similarly to Lee and Citta, neither discloses nor suggests “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal”, “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”, and “storing information about the type of channel for each of the plurality of channels into said memory unit” as recited in claim 8.

In response, as discussed above with respect to claim 1, Citta does disclosed the claimed alleged limitations “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal”, “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”, and “storing information about the type of channel for each of the plurality of channels into said memory unit”.

In re page 18, applicants argue, with respect to claim 13, that Citta et al, similarly to Lee and Citta, neither discloses nor suggests “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal”, “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”, and “storing information about the type of channel for each of the plurality of channels into said memory unit” as recited in claim 8.

In response, as discussed above with respect to claim 1, Citta does disclosed the claimed alleged limitations “marking the selected channel as a digital signal if the

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frequency of the selected channel is similar to a nominal frequency for a digital signal”, “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”, and “storing information about the type of channel for each of the plurality of channels into said memory unit”.

In re pages 17-18, applicants argue, with respect to claims 14-15, that none of the applied references cited by the examiner even remotely suggest the claimed features “marking the selected channel as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal”, “marking the selected channel as an analog signal if the intermediate frequency of the selected channel is similar to a nominal frequency for an analog signal”, and “storing information indicative of whether the selected channel is marked as a digital or analog channel” as recited in claim 14 because the examiner has failed to establish a prima facie case of obviousness since none of the cited suggests the above claimed limitations of claim 1.

In response, as discussed above with respect to claim 1, Citta does disclosed the claimed alleged limitations “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal”, “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”, and “storing information about the type of channel for each of the plurality of channels into said memory unit”.

In re pages 18-19, applicants state that claim 16, which is dependent on claim 14, is allowable for the same reasons as discussed above with respect to claim 1.

In response, as discussed above with respect to claim 14, the proposed combination of the applied references discloses all the claimed limitations of claim 1.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2 and 14 are rejected under 35 U.S.C. 102(b) as being anticipate by Citta (US Patent No. 5,283,653).

In considering claim 1, Citta discloses all the claimed subject matter, note 1) the claimed a method for processing a plurality of channels (Figs. 3-5), the method comprising the steps of: selecting a channel from the plurality of channels is met by the tuner 10 which capable of receiving either or both an HDTV signal and NTSC signal (Figs. 4-5, col. 2, lines 32-46), 2) the claimed receiving a signal associated with the selected channel is met by is met by the step of tuning channel N (Figs. 4-5, col. 2, lines 32-46 and col. 3, lines 49-52), 3) the claimed marking the selected channel as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal is met by the television channels are sequenced (by number) automatically with the HDTV signal being initially tested for with a **synthesized HDTV carrier (nominal frequency)**, if found, a memory bit HD is set "1" in RAM 28 to indicate that television channel has an HDTV signal (Figs. 4-5, col. 3, line 49 to col. 4, line 14), 4) the claimed marking the selected channel as an analog signal if the

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intermediate frequency of the selected channel is similar to a nominal frequency for an analog signal is met by the step of a **synthesized frequency for detecting NTSC carrier (nominal frequency)**, if found, the RAM memory is appropriately marked with an HD bit of "0" to indicate that television channel has an NTSC signal (Figs. 4-5, col. 3, line 49 to col. 4, line 14), 5) the claimed storing information indicative of whether the selected channel is marked as a digital or analog channel is met by a RAM memory 28, coupled to microprocessor 26 over a bi-directional communication link 30, stores information concerning the type of signal, if any, received on each different television channel (Figs. 3-5, col. 2, lines 50-61 and col. 3, line 49 to col. 4, line 10), and 6) the claimed repeating said selecting, receiving, digital channel determining, analog channel determining and storing steps until each of the plurality of channels have been selected is met by the step of testing the next television channel in sequence whenever that television channel number is subsequently selected (Figs. 4-5, col. 3, line 49 to col. 4, line 14).

In considering claim 2, the claimed wherein the information associated with the selected channel is stored into a memory unit is met by a RAM memory 28, coupled to microprocessor 26 over a bi-directional communication link 30, stores information concerning the type of signal, if any, received on each different television channel (Figs. 3-5, col. 2, lines 50-61 and col. 3, line 49 to col. 4, line 10).

Claim 14 is rejected for the same reason as discussed in claim 1.

Claim Rejections - 35 USC § 103

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citta (US Patent No. 5,283,653) and in view of Lee (US Patent No. 6,335,762 B1).

In considering claim 3, Citta discloses all the claimed subject matter, note 1) the claimed wherein said digital channel determining step further comprises the steps of: determining that the received signal is a digital baseband signal is met by the synchronous detector 22 and the tuner microprocessor 26 (Figs. 3-5, col. 2, line 32 to col. 3, line 48), and 2) the claimed marking the selected channel as digital if the synchronization and error check signals are proper is met by the RAM memory which is appropriately marked with an HD bit of 1, and FC bit of 1 for the HDTV signal (Fig. 4, col. 3, line 49 to col. 4, line 10).

However, Citta explicitly does not disclose the claimed receiving synchronization and error check signals from the received signal and determining whether the generated synchronization and error check signals are proper for a digital television signal.

Lee teaches that the step 5202 in which the second detector 150 detects a synchronous (segment or field synchronous) signal and error rate from the HDTV signal processed in the second signal processor 130 and outputs a second detection signal of logic "high" when the synchronous signal is detected and the error rate is less than or equal to the threshold value, as show in Fig. 3 (Figs. 1-3 and 5, col. 4, lines 24-67 and

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col. 5, line 39 to col. 6, line 34), and the determination signal generator 160 which outputs to the selector 170 a determination signal for selecting the output of the second signal processor 130, when the second detection signal is logic "high" in step 5203 (Figs. 1-3 and 5, col. 4, lines 24-67 and col. 5, line 39 to col. 6, line 34).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the second detector as taught by Lee into Citta's system in order to provide a method for correctly determining whether a received signal is an HDTV signal or an analog TV signal in an HDTV receiver.

Claim 15 is rejected for the same reason as discussed in claim 3.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Citta (US Patent No. 5,283,653) and in view of Lee (US Patent No. 6,335,762 B1) as applied to claims 1 and 3 above, and further in view of Han (US Patent No. 6,545,723 B1).

In considering claim 4, Lee discloses all the claimed subject matter, note 1) the claimed wherein the synchronization signals comprise a Segment Lock signal is met by the synchronous signal detector 152 which detects a field or segment synchronous signal included in a signal selected by the second selector 153 (Figs. 2-3, col. 4, lines 19-67). However, the combination of Lee and Citta explicitly do not disclose the claimed the synchronization signals comprise a Carrier Lock signal. Han teaches that a timing recovery unit, coupled to receive the intermediate frequency signal output from the tuning unit, for self-recovering symbol timing of the applied HDTV signal, and outputting a symbol timing lock signal and an analog-to-digital converted HDTV signal (Figs. 1-3, col. 2, lines 1-18 and col. 3, line 41 to col. 6, line 45).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the synchronization signals comprise a Carrier Lock signal as taught by Han into the combination of Lee and Citta's system in order to provide a method of receiving both HDTV signals and NTSC signals using symbol timing recovery and sync signal detection (col. 1, lines 50-53 of Han).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Citta (US Patent No. 5,283,653) and in view of Lee (US Patent No. 6,335,762 B1) as applied to claims 1 and 3 above, and further in view of Citta et al (US Patent No. 6,559,898 B1).

In considering claim 5, Lee discloses all the claimed subject matter, note 1) the claimed wherein the error correction signals comprise FEC Lock is met by the FEC decoder 137 (Fig. 3, col. 4, lines 24-67 of Lee). However, the combination of Lee and Citta explicitly do not disclose the claimed the error correction signals comprise Reed Solomon Error Rate signals. Citta et al teach that for terrestrial broadcasting, the data signal is: randomized', subjected to Reed-Solomon (R/S) type encoding for error correction (Fig. 1, col. 1, lines 32-51 and col. 2, lines 56-67).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the Reed-Solomon (R/S) type encoding for error correction as taught by Citta et al into the combination of Lee and Citta's system in order to provide a low cost digital signal coupling system for a VSB digital television receiver.

9. Claims 6-7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Citta (US Patent No. 5,283,653) in view of DeVilbiss (US Patent No. 4,737,993).

In considering claim 6, Citta discloses all the claimed subject matter, note 1) the claimed wherein said analog channel determining step further comprises the steps of: determining that the received signal is an analog baseband signal is met by the synchronous detector 22 and the tuner microprocessor 26 (Figs. 3-5, col. 2, line 32 to col. 3, line 48), and 2) the claimed marking the channel as analog if the video carrier is automatically fine tuned and the video synchronization signal is detected is met by the RAM memory which is appropriately marked with an HD bit of 0, and FC bit of 1 for the NTSC TV signal (Fig. 4, col. 3, line 49 to col. 4, line 10).

However, Citta explicitly do not disclose determining whether a video carrier of the analog baseband signal is automatically fine tuned, and determining whether a video synchronization signal is detected.

DeVilbiss teaches that an automatic fine tuning (AFT) signal representing the deviation, if any, of the frequency of the picture carrier of the IF signal from a nominal frequency value, e.g., 45.75 MHz in the United States, is generated by an AFT detector 19 coupled to IF unit 14, the AFT signal is utilized in the tuning process for fine tuning tuner 10, a composite synchronization ("sync") signal is derived from the video signal by video processor 16, in addition to its traditional use, the composite synchronization signal is also utilized in the tuning process, for identifying "active" or "occupied" channel tuned by tuner 10 (Fig. 1, col. 3, line 4 to col. 4, line 64).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the tuner which has automatic fine tune (AFT) voltage

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and the video synchronization detector as taught by DeVibiss into Citta's system in order to accurately detect the validity of receiving the television signal.

In considering claim 7, the claimed wherein said video synchronization is a composite SYNC signal having a vertical synchronization signal and a horizontal synchronization signal is met by the video synchronization detector 50 (Fig. 1, col. 4, lines 36-64 of DeVibiss).

Claim 16 is rejected for the same reason as discussed in claim 6.

10. Claims 8-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US Patent No. 6,335,762 B1) in view of Citta (US Patent No. 5,283,653) and further in view of Kim (US Patent No. 6,519,298 B1).

In considering claim 8, Lee discloses all the claimed subject matter, note 1) the claimed a tuner for converting a radio frequency (RF) signal associated with each of the plurality of channels into an intermediate frequency (IF) signal is met by the tuner 110 which simultaneously receives an HDTV signal and an NTSC TV signal (Fig. 1, col. 2, lines 50-65), 2) the claimed a digital signal converter, coupled to said tuner, for demodulating the IF signal into a baseband digital signal and generating synchronization and error correction signals from the baseband digital signal is met by the second signal processor 130 which demodulates and processes the HDTV signals and performs the synchronous signal detection and the error correction decoder (Figs. 1-3, col. 2, line 61 to col. 4, line 67), 3) the claimed an analog signal converter, coupled to said tuner, for demodulating the IF signal into a baseband analog signal and generating tuning and synchronization signals from the baseband analog signal is met

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by the first signal processor 120 which demodulates and processes the NTSC TV signals and generates tuning and synchronization signals from the baseband analog signal (Fig. 1, col. 2, line 61 to col. 3, line 22).

However, Lee explicitly does not disclose: 1) the claimed a video processor, coupled to said digital and analog signal converters, for processing video and audio components of the baseband digital and analog signals to an output device, and 2) the claimed a memory unit for storing autoprogramming software and information associated with each of the plurality of channels, and a microprocessor, coupled to said digital signal converter, said analog signal converter, said tuner and said memory unit, for controlling said tuner, receiving signals from said analog and digital signal converters, executing autoprogramming software, marking the received signals as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal and an analog signal if the intermediate frequency of the selected channel is similar to a nominal frequency for an analog signal, and storing information about the type of channel for each of the plurality of channels into said memory unit.

1) Kim teaches that a display processor 122 selects either the NTSC TV signal provided from a first ADC 110 or the HDTV signal provided from the video decoder 120 according to the discriminating signal HD/NTSC, processes the selected signal as a signal suitable to be displayed, and provides the processed signal to a digital-to-analog converter (DAC)/mixer 124 (Fig. 1, col. 2, lines 57-67). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the

display processor as taught by Kim into Lee's system in order to process the video signal to the suitable format to be displayed.

2) Citta teaches that a tuner microprocessor 26 is coupled to tuner 10 and supplies logic signals for controlling the development of appropriate synthesized frequencies for receiving and detecting the gamut of HDTV channel signals and NTSC channel signals, in a RAM memory 28, coupled to microprocessor 26 over a bi-directional communication link 30, stores information concerning the type of signal, if any, received on each different television channel and the auto programming mode illustrating by the flow chart of Fig. 4 (Figs. 1 and 4, col. 2, lines 50-61 and col. 3, line 49 to col. 4, line 10).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the microprocessor for executing auto programming software and the RAM memory as taught by Citta into Lee's system in order to automatically selects the appropriate television signal when tuned to a "television channel" and capable of automatically receiving either HDTV or NTSC spectrum.

In considering claim 9, the claimed wherein said digital signal converter comprises: a digital demodulator for demodulating the IF signal into a digital baseband signal and generating synchronization signals is met by the IF amp demodulation block 131 which demodulates the IF signal to a baseband signal using a pilot signal included in the IF signal and the synchronous signal detection 152 (Figs. 2-3, col. 3, line 43 to col. 4, line 67 of Lee), 2) the claimed a forward error correction (FEC) module, coupled to said digital demodulator, for generating error correction signals is met by the FEC

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decoder 142 of the channel decoder 116 (Figs. 1-2, col. 3, lines 55-65 of Kim), and 3) the claimed a digital signal processor, coupled to said FEC module, for separating the digital baseband signal into video and audio components is met by the transmission decoder 118 which analyses a transport packet header from the transport packet and divides the transport packet into a video stream and an audio stream (Fig. 1, col. 2, lines 50-56 of Kim).

In considering claim 11, the claimed wherein said microprocessor determines the type of channel by executing auto programming software stored in said memory unit is met by a RAM memory 28, coupled to microprocessor 26 over a bi-directional communication link 30, stores information concerning the type of signal, if any, received on each different television channel and the auto programming mode illustrating by the flow chart of Fig. 4 (Figs. 1 and 4, col. 2, lines 50-61 and col. 3, line 49 to col. 4, line 10 of Citta).

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US Patent No. 6,335,762 B1) in view of Citta (US Patent No. 5,283,653), Kim (US Patent No. 6,519,298 B1), and further in view of Sugiyama (US Patent No. 6,313,886 B1).

In considering claim 10, Lee discloses all the claimed subject matter, note 1) the claimed wherein the analog signal converter comprises: an analog demodulator for demodulating the IF signal into an analog baseband signal and generating tuning signals is met by the first signal processor 120 which demodulates and processes the NTSC TV signals and generates tuning and synchronization signals from the baseband analog signal (Fig. 1, col. 2, line 61 to col. 3, line 22 of Lee). However, the combination

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of Lee, Citta and Kim explicitly do not disclose the claimed analog signal processor, coupled to said analog demodulator, for generating video synchronization signals and separating the analog baseband signal into video and audio components. Sugiyama teaches that the analog video processing circuit 413 processes the demodulated analog signals received from the analog demodulator 405 and the analog audio processing circuit 415 processes the demodulated analog signals received from the analog demodulator 405 (Fig. 4, col. 4, lines 12-64). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the analog processing circuit as taught by Sugiyama into the combination of Lee, Citta and Kim's system in order to tune transmission channels that transmit either PSIP transport streams or non-PSIP transport streams.

12. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US Patent No. 6,335,762 B1) in view of Citta (US Patent No. 5,283,653), Kim (US Patent No. 6,519,298 B1), and further in view of Han (US Patent No. 6,545,723 B1).

In considering claim 12, Lee discloses all the claimed subject matter, note 1) the claimed wherein the synchronization signals comprise a Segment Lock signal is met by the synchronous signal detector 152 which detects a field or segment synchronous signal included in a signal selected by the second selector 153 (Figs. 2-3, col. 4, lines 19-67). However, the combination of Lee, Citta and Kim explicitly do not disclose the claimed the synchronization signals comprise a Carrier Lock signal. Han teaches that a timing recovery unit, coupled to receive the intermediate frequency signal output from the tuning unit, for self-recovering symbol timing of the applied HDTV signal, and

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outputting a symbol timing lock signal and an analog-to-digital converted HDTV signal (Figs. 1-3, col. 2, lines 1-18 and col. 3, line 41 to col. 6, line 45).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the synchronization signals comprise a Carrier Lock signal as taught by Han into the combination of Lee, Citta and Kim's system in order to provide a method of receiving both HDTV signals and NTSC signals using symbol timing recovery and sync signal detection (col. 1, lines 50-53 of Han).

13. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US Patent No. 6,335,762 B1) in view of Citta (US Patent No. 5,283,653), Kim (US Patent No. 6,519,298 B1), and further in view of Citta et al. (US Patent No. 6,559,898 B1).

In considering claim 13, Kim discloses all the claimed subject matter, note 1) the claimed wherein the error correction signals comprise FEC Lock is met by the FEC decoder 142 (Fig. 2, col. 3, lines 56-65 of Kim). However, the combination of Lee, Citta and Kim explicitly do not disclose the claimed the error correction signals comprise Reed Solomon Error Rate signals. Citta et al teach that for terrestrial broadcasting, the data signal is: randomized', subjected to Reed-Solomon (R/S) type encoding for error correction (Fig. 1, col. 1, lines 32-51 and col. 2, lines 56-67). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the Reed-Solomon (R/S) type encoding for error correction as taught by Citta et al into the combination of Lee, Citta and Kim's system in order to provide a low cost digital signal coupling system for a VSB digital television receiver.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (571) 272-7358. The examiner can normally be reached on 8:00 AM - 5:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TT
March 2, 2006



Trang U. Tran
Examiner
Art Unit 2614